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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,527	03/17/2004	Wolfgang Bredow	MFR 125	2290

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WASHINGTON, DC 20005

EXAMINER

DAGOSTA, STEPHEN M

ART UNIT	PAPER NUMBER
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2683

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/801,527

Applicant(s)

BREDOW ET AL.

Examiner

Stephen M. D'Agosta

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1-4 and 7** rejected under 35 U.S.C. 103(a) as being unpatentable over Fredriksson US 6,467,039 and further in view of Chang et al. US 5,692,019 and Ling et al. US 6,172,970.

As per **claim 1**, Fredriksson teaches a remote controlled industrial equipment (figure 11 teaches remotely controlled cranes), comprising:

at least one transmitter (figure 11 shows several crane operators which have monitor/control equipment, see 4i, 5i and 6i, which inherently requires a transmitter to transmit control commands to crane);

at least one first receiver (figure 11 shows each crane with a transceiver on-board, see 1r, 2r and 3r); and

a control connection from the transmitter to at least one of the receivers can be established for the purpose of converting control signals of the transmitter into working movements of the industrial equipment (C15, L4-52 teaches a control operator who sends commands to the crane in order to control it)

**but is silent on** at least one second receiver that is operable parallel to the first receiver, the receivers being arranged with parts of the industrial equipment widely displaced from one another.

**Chang** teaches "In an FM communication system, such as a one-way or two-way messaging system, a phenomena known as "fading" occurs in which a signal is distorted and its strength weakened at a communication receiver, by the topography of a particular geographical location such that the signal received by the communication receiver contains erred information. In most cases, the erred information in the received signal caused by

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fading can be corrected by using an encoding and error correcting scheme for the information to be transmitted on the radio frequency carrier. For example, interleaving the digital data has proven an acceptable and useful solution. Another solution to fading problems is to provide two antennas spaced apart from each other on the receiver to create spatial diversity." (Cxx, Lxx)

Furthermore, **Ling** teaches an antenna diversity receiver with two receiver antennas (figure 1 shows ANT 1 and ANT 2) which selects the antenna having the higher/better signal quality (C6, L56 to C7, L25).

**With further regard to claim 5, Chang** teaches antennas being spaced apart (eg. associated with different parts of the industrial equipment widely displaced from one another) while **Ling** teaches antenna diversity whereby one of the two antennas is selected based on better signal quality. Hence if the first antenna cannot receive the signal but the second antenna can, the second antenna's signal will be used, which reads on "such that when a control connection between the transmitter and the first receiver can not be established, a control connection from the transmitter to the second receiver can be established for converting control signals of the transmitter into working movements of the industrial equipment, and such that when the control connection between the transmitter and the second receiver can not be established, the control connection from the transmitter to the first receiver can be established for converting the control signals of the transmitter into the working movements of the industrial equipment".

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that at least one second receiver that is operable parallel to the first receiver, the receivers being arranged with parts of the industrial equipment widely displaced from one another AND associated on different parts and establishing control via one of the two antennas, to provide means for using antenna diversity for optimal reception of remote RF commands.

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As per **claim 2**, Fredriksson teaches claim 1 **but is silent on** wherein the first and second receiver are connected together via a permanently installed control line on the industrial equipment.

Ling teaches the two receiver antennas being connected via a baseband processor (see figure 1). The diagram also shows both signals being summed and inputted into a Front End RF Circuit as well.

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that the first and second receiver are connected together via a permanently installed control line on the industrial equipment, to provide means for comparing the two received signals at a central point to determine the optimal command signal which will be used.

As per **claim 3**, Fredriksson teaches claim 1, wherein the first and second receivers are at least partially configured as transceivers for establishing a radio feedback channel (C15, L5-35 teaches communications occurring between the crane and the operator in a feedback/transmitting manner).

As per **claim 4**, Fredriksson teaches claim 1, wherein a control connection between the transmitter and the respective receivers, to a controller of a working unit of the industrial equipment, which facilitates a conversion of the control signals into the working movements, contains additional information about an identity and/or a location of the transmitter/receivers for influencing a type and/or a scope of the working movements (C15, L5-35 teaches a crane operator sending commands to the crane. It also teaches the use of an identity, eg. 1i, 2i or 3i in figure 11).

As per **claim 7**, Fredriksson teaches claim 5, wherein at least one of the receivers and the transmitter comprises a transceiver (C15, L4-35 teaches both the crane operator and crane having transmit/receive capability).

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**Claim 6** rejected under 35 U.S.C. 103(a) as being unpatentable over Fredriksson, Chang and Ling and further in view of Wenzel et al. 2003/0058087.

As per **claim 6**, Fredriksson teaches claim 5 **but is silent on** wherein the transmitter is portable.

Wenzel teaches a remote controlled construction device with portable/handheld controller/transmitter (abstract and see figure 3).

It would have been obvious to one skilled in the art at the time of the invention to modify Fredriksson, such that the transmitter is portable, to provide means for the control operator to be located at best vantage point needed to see/operate the remotely controlled device.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Baker et al. US 6,578,925
2. Brousseau et al. US 2003/0040853
3. Suzuki et al. US 4,977,615
4. Hamada et al. UYS 4,525,869
5. Wildhagen US 2002/0168955
6. Fischer et al. US 5,552,641
7. Masamura US 4,715,048

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen D'Agosta  
Primary Examiner

